CLAIMS

Therefore, having thus described the invention, at least the following is claimed:

A smoke detector comprising:

a smoke sensor sensing a smoke condition and outputting an alarm signal upon detecting a smoke condition;

an alarm, connected to the smoke tensor, indicating a smoke condition upon detection of the alarm signal; and

a communication device, connected to the smoke sensor, receiving the alarm signal and wirelessly transmitting an indicator of the smoke condition in a predetermined message format to a remote monitoring device upon detection of the alarm signal, each communication device having an unique address.

- 2. The smoke detector of claim 1, wherein the smoke sensor is a photodetection smoke sensor.
- 3. The smoke detector of claim 2, wherein the alarm is an audible alarm.
- 4. The smoke detector of claim 3, wherein the predetermined message format comprises at least one packet, wherein the packet comprises:

a receiver address comprising a scalable address of the at least one of the intended receiving communication device;

a sender address comprising the address of the sending

communication device

packet;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and an error detector that is a redundancy check error detector.

5. The smoke detector of claim 4, wherein the packet further comprises:

a packet length indicator which indicates a total number of bytes in the current

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generate a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

6. The smoke detector of claim 5, wherein the packet further comprises:

a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

- 7. The smoke detector of claim 6, wherein the wireless communication comprises radio frequency (RF) communication.
- 8. The smoke detector of claim , wherein the wireless communication comprises a low powered RF communication.
- 9. The smoke detector of claim 8, wherein the message comprises Manchester encoding.
- 10. An apparatus for insertion between a smoke detector and a surface, the apparatus comprising:

a data interface configured to receive a signal and outputs a conditioned signal; an identifier configured to output an unique identifier of the apparatus;

a data controller configured to receive the conditioned signal and the unique identifier and to output a message comprising the conditioned signal and the unique identifier in a predetermined message format; and

a transmitter configured to wirelessly transmit the message.

11. The apparatus of claim 10, wherein the message comprises at least one packet, wherein the packet comprises:

a receiver address that is a scalable address of the at least one of the intended receiving transceivers;

a sender address that address is the unique identifier of the sending transceiver;

a command indicator that is a command code;

data that is a scalable message; and

an error detector that is a redundancy check error detector.

12. The apparatus of claim 11, wherein the packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generate a response message number equal to the sender message number +1.

13. The apparatus of claim 12, wherein the packet further comprises:

a preface and a postscript;

wherein the preface comprises twenty four logic ones and a two bits of high

voltage; and

wherein the postscript comprises a low voltage output.

- 14. The apparatus of claim 13, wherein the communicator is in wireless communication with the local gateway.
- 15. The apparatus of claim 14, wherein the wireless communication is via radio frequency (RF) communication.
- 16. The apparatus of claim 15, wherein the wireless communication is via a low powered RF communication.
- 17. The apparatus of claim 16, wherein the preformatted message is transmitted via Manchester encoding.
- 18. A remote monitoring system comprising:

a sensor sensing a condition and outputting a signal;

a communicator configured to receive the signal and transmitting a corresponding message via a predetermined message format;

a remote gateway, geographically remote from the communication device, configured to receive the message and decode the message via a predetermined message format; and

a central monitoring station, communicating with the remote gateway via a WAN, configured to receive the decoded message.

- 19. The system of Claim 18, wherein the sensor comprises a smoke detector and the sensed signal indicates a presence of smoke.
- 20. The system of claim 19, wherein the communication device comprises an transmitter, a data interface, a data controller, and an identifier;

wherein the data interface receives the signal and outputs a conditioned signal; wherein the identifier outputs an unique identifier of the communication device;

wherein the data controller receives the conditioned signal and the unique identifier and outputs the message; and

wherein the transmitter wirelessly transmits the message.

21. The system claim 20, wherein the message comprises at least one packet,

wherein the packet comprises:

a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;

a sender address comprising the unique identifier of the sending

transceiver;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and

an error detector comprising a redundancy check error detector.

22. The system of claim 21, wherein the packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generate a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

23. The system of claim 22, wherein the packet further comprises:

a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

24. The system of claim 23, wherein the communicator is in wireless communication with the local gateway.

- 25. The system of claim 24, wherein the wireless communication comprises radio frequency (RF) communication.
- 26. The system of claim 25, wherein the wireless communication comprises a low powered RF communication.
- 27. The system of claim 26, wherein the preformatted message further comprises Manchester encoding.
- 28. The system of claim 18, wherein the sensor and the communicator form a sensing system, and wherein the system further comprises a plurality of sensing systems, each communicating with the local gateway.
- 29. The system of claim 23, wherein each transceiver is in wireless communication with at least one other of the plurality of transceivers.
- 30. The system of claim 24, wherein the wireless communication is via radio frequency (RF) communication.
- 31. A sensing system for remotely sensing a condition and remotely transmitting the sensed condition to a geographically remote controller, the sensing system comprising: a sensor that detects a condition and outputs a sensed signal;

a communicator that receives the sensed signal, composes a message comprising the sensed signal to the geographically remote controller;

wherein the communicator comprises;

a data interface that receives the sensed signal, conditions the sensed signal, and outputs the conditioned signal

an unique identifier that uniquely identifies the communicator;

a data controller that receives the data interface and the unique identifier, composes the message, and outputs the message; and

a transmitter that receives the message and transmits the message to the geographically remote facility; and

wherein the message comprises at least one packet, wherein the packet contains:

a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;

a sender address comprising the unique identifier of the sending sensor message;

a command indicator comprising a command code; at least one data value comprising a scalable message; and an error detector comprising a redundancy check error detector.

32. The system of claim 31, wherein a packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

a message number, wherein the controller generates a sender messages in the preformatted command message and the transceiver generates a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

33. The system of claim 32, wherein the packet further comprises a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

- 34. The system of claim 33, wherein the communicator is a transmitter that transmits the message.
- 35. The system of claim 34, wherein the communicator is a transceiver that transmits the message and receives messages

- 36. The system of claim 35, wherein the sensing system is in wireless communication with the geographically remote controller.
- 37. The system of claim 36, wherein the wireless communication comprises radio frequency (RF) communication.
- 38. The system of claim 37, wherein the RF communication comprises a low powered RF communication.
- 39. They system of claim 38, wherein the preformatted message comprises Manchester encoding.
- 40. A remote monitoring system comprising:

 means for sensing a condition and transmitting a message;

 means for remotely receiving the message and decoding the message; and

 means for remotely monitoring the remote receiving means whereby the remote

 monitoring means receives the decoded message and reviews the decoded

 message.
- 41. The system of claim 40 wherein the sensing means comprises means for sensing smoke.

42. The system of claim 41, wherein the sensing means comprises:

means for wirelessly transmitting the message;

means for conditioning the sensed signal;

means for uniquely identifying the sensing means; and

means for formatting the condifional signal into the message.

43. The system of claim 42, wherein the predetermined message format comprises:

means for identifying at least one intended received of the message;

means for identifying the sending receiving means;

means for identifying a command;

means for identifying the sensed signal;

means for identifying any errors.

44. The system of claim 43, wherein the predetermined message format further comprises at least one means for packeting information; and wherein the message comprises at least one packeting means.

45. The system of claim 44, wherein the predetermined message format further comprises:

means for identifying a number of byte length of the current packet;

means for identifying a number of packets in a message;

means for identifying which of the total number of packets in a message the

current packet is; and

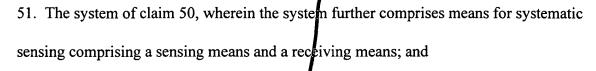
means for identifying which of the total number of packets in a message the current packet it; and

means for identifying the message to coordinate the command and the response.

- 46. The system of claim 45, wherein the means for packeting further comprises:

 means for prefacing the packet; and

 means for postscripting the packet.
- 47. The system of claim 46, wherein the prefacing means comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and
 - 48. wherein the postscripting means comprises a low voltage output.
- 48. The system of claim 47, wherein the wireless transmitting means transmits via radio frequency.
- 49. The system of claim 48, wherein the wireless transmitting means transmits via low-powered radio frequency.
- 50. The system of claim 49, wherein the wireless transmitting means transmits via Manchester coding.



wherein the system further comprises multiple systematic sensing means.

52. A system for sensing a condition and remotely transmitting the sensed condition to geographically remote controller, the system comprising:

means for sensing a condition and transmitting a message to a geographically remote controller via a predetermined message format;

wherein the sensing means comprises:

means for conditioning the sensed signal;

means for uniquely identifying the communicating means;

means for formatting the conditional signal into the predetermined

formatted message; and

means for transmitting the message; and

wherein the predetermined message format comprises at least one packet, wherein the packet comprises:

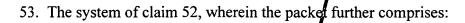
means for identifying at least one intended receiver;

means for identifying a sender;

means for identifying a command;

means for identifying the sensed signal; and

means for identifying errors.



means for indicating a byte length of the packet;

means for indicating a total number of packets in a message;

means for indicating which of the total number of packets the current

packet is; and

means for identifying the message to coordinate commands and responses.

54. The system of claim 53, wherein the packet further comprises:

means for prefacing the packet comprising twenty-four logic ones and two

bits of high voltage; and

means for postscripting the packet comprising a low voltage output.

- 55. The system of claim 54, wherein the sensing means comprises an RF transmitter.
- 56. The system of claim 55, wherein the sensing means comprises an RF transceiver.
- 57. A method of remotely monitoring a condition, the method comprising:

monitoring a condition;

outputting a sense signal;

transmitting the sensed signal to a geographically remote controller via a

predetermined formafted message;

decoding the transmitted message; and

receiving the decoded message at a central monitoring station.

- 58. The method of claim 57, wherein monitoring a condition comprises monitoring for a presence of smoke.
- 59. The method of claim 58, wherein transmitting the sensed signal comprises:

receiving the sensed signal;

conditioning the sensed signal;

formatting the sensed signal into the message; and

transmitting the message;

60. The method of claim 59, wherein transmitting the sensed signal comprises:

receiving the sensed signal;

conditioning the sensed signal;

formatting the sensed signal into the message; and

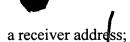
transmitting the message;

- 61. The method of claim 60, wherein receiving the decoded message comprises receiving the decoded message via the Internet.
- 62. The method of claim 61, wherein formatting the sensed signal comprises:

determining a byte length of the sensed signal;

determining a number of packets needed to send the sensed signal; wherein a

packet comprises:



a sender address;

a command indicator;

the formatted sensed signal;

an error detector;

a packet length indicator;

a current packet indicator; and

a message number; and

composing the message

- 63. The method of claim 62, wherein the transmitting the message comprises wirelessly transmitting the message.
- 64. The method of claim 63, wherein transmitting the message further comprises transmitting the message via RF.
- 65. The method of claim 63, wherein transmitting the message further comprises transmitting via low-powered RF.